This presentation should not be considered a final statement of NIOSH policy or of any agency or individual who was involved. This information is intended for use in advancing knowledge needed to protect workers. Comments regarding this presentation may be submitted to the NIOSH Docket Office.

#### **CBRN Related Topics**

- Flow Investigation
- Structural Collapse
- R&D Program
- Next Public Meeting





- Docket Information Concerning High Physiologic Demand (Work Rate)
  - Submitted Data Indicates Peak Inhalation Air Flows In The Range of 700 to 900 I/min,
  - Recent Submitted Data Suggests Peak Inhalation Flow Rates of 400 to 500 l/min,





- Submitted Data Also Suggests:
  - Peak Inhalation Air Flow Increases
    Significantly (Approx. 10%) During Speaking Exercises,
  - Peak Inhalation Air Flow May Effect Respirator Performance
- Independent Data Also Suggests Peak Inhalation Air Flow of 400 to 500 I/min





CBRN R&D Program





- NIOSH Investigation to Address Issues
  Concerning High Physiologic Demand
- Three Part Investigation
  - Literature Research
  - Respirator Testing / Data Analysis
  - Protection Analysis





- Literature Research
  - Published Research and On-Going Research
  - Maximum Ventilation Rates Experienced at High Work Rates
  - Shape and Form of Breathing Cycle at High Work Rates
  - Influencing Factors (Speaking)





- Respirator Testing / Data Analysis
  - Testing As Required to Fill Gaps In Research
  - Respirator Performance at High Flow
    - Self-Contained Respirators
    - Particulate Respirators
    - Gas & Vapor Respirators





- Protection Analysis
  - Self-Contained Respirators
  - Particulate Respirators
  - Gas & Vapor Respirators
- Impact Analysis





## HEALTH AND SAFETY GUIDELINES FOR EMERGENCY WORKERS: POST-STRUCTURAL COLLAPSE HAZARDS

 NIOSH/NPPTL has established an Interagency agreement with the National Science Foundation and the RAND Science and Technology Policy Institute to assist in\_developing health and safety guidelines for emergency responders required to work near or on the remains of recently collapsed buildings





# HEALTH AND SAFETY GUIDELINES FOR EMERGENCY WORKERS: POST-STRUCTURAL COLLAPSE HAZARDS

- The NIOSH/RAND team is using a three-part approach to develop the guidelines:
- Characterize the response mission and hazards (airborne, biological, thermal, physical, and other) to emergency responders at building collapse sites.
- Assess the short- and long-term health effects to emergency responders of exposure to the hazards identified in step 1; duration and level of exposure will be considered.
- Identify personal protective equipment options that will protect the various groups of emergency responders from the hazards that they are likely to encounter.



